

WHAT IS CLAIMED IS:

- 1           1. A machine for punching out assembled electronic circuitry
- 2       parts from a carrier tape, including a tape feeding station arranged to
- 3       reel off an electronic parts carrier tape having a plural number of
- 4       assembled electronic part sections formed in a predetermined pitch in
- 5       the longitudinal direction thereof, and a tape punching station
- 6       arranged to punch out said electronic part sections successively from
- 7       said tape,
- 8           characterized in that said machine comprises:
- 9           at least a couple of reel support shafts provided separately at said
- 10      tape feeding section; and
- 11           a tape switcher provided in association with a tape supply route
- 12      from said tape feeding station to said tape punching station and
- 13      adapted to releasably hold a fore end portion of a carrier tape from a
- 14      tape supply reel in a standby position while a carrier tape is being fed
- 15      to said tape punching station from a currently active tape supply reel,
- 16      and to splice said fore end of the carrier tape from said standby reel to
- 17      said carrier tape from said currently active supply reel at a position
- 18      posterior to a last electronic part section on said carrier tape from said
- 19      currently active reel, switching the tape supply from said currently
- 20      active reel to the standby reel substantially in an uninterrupted manner

21 as soon as said carrier tape from said active reel has been consumed to  
22 said last electronic part section.

1 2. A machine as defined in claim 1, further comprising a tape end  
2 detection means located in the course of said tape supply route from  
3 said tape feeding station to said tape punching station to detect a  
4 position of said last electronic part section on said carrier tape from  
5 said currently active reel, actuating said tape switcher in response to a  
6 signal from said tape end detection means.

1 3. A machine as defined in claim 1, wherein said carrier tape has  
2 front and rear leader tapes attached to the fore and rear ends of said  
3 electronic parts carrier portion, and said tape switcher includes a cutter  
4 means for cutting a rear leader tape portion of said carrier tape from  
5 said currently active supply reel, a tape holder means for holding a rear  
6 end portion of the tape cut by said cutter means and overlapping same  
7 on a fore end portion of the carrier tape from said standby reel, and  
8 stapler means for connecting the overlapped rear and fore end portions  
9 securely to each other.

1 4. A method for replacing a consumed reel by a fresh tape supply

2 reel in punching out assembled electronic circuitry parts from a carrier  
3 tape by a machine including a tape feeding station arranged to reel off  
4 an electronic parts carrier tape having a plural number of assembled  
5 electronics circuitry part sections formed in a predetermined pitch in  
6 the longitudinal direction thereof, and a tape punching station  
7 arranged to punch out said electronic part sections successively from  
8 said tape, said method comprising the steps of:

9         setting a fresh tape supply reel at said tape feeding station while  
10 a carrier tape is being supplied to said tape punching station from a  
11 first tape supply reel, and connecting a fore end portion of the tape  
12 from said fresh supply reel to a tape switcher; and

13         upon detecting that the tape from said first supply reel has been  
14 consumed completely, splicing said fore end portion of the tape from  
15 said fresh supply reel to a rear end portion of the consumed tape while  
16 cutting off the rear end portion of the consumed tape from said first  
17 supply reel.

1         5. A method for fabricating electronics circuitry part units each  
2 having an IC device mounted on a wiring pattern formed a substrate  
3 film by a machine having a tape feeding station arranged to reel off an  
4 electronic parts carrier tape having a plural number of assembled

5 electronic part sections formed in a predetermined pitch in the  
6 longitudinal direction thereof, and a tape punching station arranged to  
7 punch out said electronic part sections successively from said tape,  
8 said method comprising the steps of:

9       setting a couple of supply reels of the electronic parts carrier tape  
10 separately on two reel support shafts;

11       while feeding a carrier tape from one supply reel pitch by pitch  
12 toward said tape punching station, detecting electronic circuitry parts  
13 on said carrier tape one after another by a sensor means, setting the  
14 detected electronic parts one after another in a punching position at  
15 said tape punching station, punching out and separating said  
16 electronic parts one after another from said carrier tape by actuating a  
17 cutter provided at said tape punching station;

18       upon detecting by a sensor means that all of the electronic parts  
19 on the carrier tape from said one supply reel have been consumed  
20 completely, splicing a fore end portion of a carrier tape from the other  
21 supply reel to a rear end portion of the carrier tape from said one  
22 supply reel at a position posterior to a last electronic part section of the  
23 consumed tape, cutting the tape from one supply reel at a splicing  
24 position, starting a punching operation on the carrier tape from the  
25 other supply reel as soon as a foremost electronic part section is

26      advanced to said tape punching station; and  
27              while the punching operation on the carrier tape from said the  
28      other supply reel is in progress at said tape punching station, removing  
29      the consumed reel and setting a fresh supply reel in position in place of  
30      the consumed reel.